
Description

Message Registration (MR) is an optional software package that meters local calls over designated central office (CO) trunks. The Message Registration (MR) feature counts Reverse Battery (RVB) pulses from outgoing loop start or ground start CO trunks. Pulses received are stored in software meters. Each meter is assigned to a Directory Number (DN) or trunk access code that requires metering.

The Message Registration feature allows each customer within the system to keep an accurate record of CO calls for billing and administration purposes.

- Each Directory Number (DN) of three or more digits, including the attendant DN, can be assigned a software meter. For multiple appearance DNs, only one meter is assigned to meter all calls to the Prime DN (PDN). Stations with multiple DN keys have a meter allocated for each DN key.
- Meters can also be assigned to TIE trunk routes. A TIE route meter can be assigned to the route access code of each TIE route in the customer group. An access code for a metered route must be at least three digits long.
- The system automatically assigns one customer meter for each customer within the system. This customer meter is used to store pulses that cannot be added to particular DN or trunk meters assigned in the customer group.

Software meters are assigned in LDs 10 and 11. Each meter number corresponds to the DN or Trunk Access Code to which it is assigned. Meters can be either ON or OFF. When a meter is turned off, pulses received are not stored. The customer meter is always on and cannot be turned off. Meters can also be turned on or off individually or in groups, using a background terminal (BGD).

Each software meter can store up to 32,766 pulse counts before automatically resetting to 0. When a meter is reset, a message is printed on the system maintenance terminal, the BGD, or both, indicating that a reset occurred. Overflow messages display information on meter contents for any DN or Trunk Access Code requested:

- Station or trunk TN
- Station DN or the Trunk Access Code
- Trunk TN (outgoing CO trunk used for the call)
- Customer number for their station or trunk
- Meter count before reset (32766)

The message for a customer meter overflow appears as follows:

CUST MTR xx OVF 32766

When equipped with the MR feature, the system is capable of the following provisions:

- Attendants are able to meter outgoing local calls over CO routes.
- Meter contents are accessible from SL-1 and digital telephones equipped with digit display and a Message Registration key/lamp pair.
- Meter contents are also accessible from BGDs.

The system uses class of service (CLS) to distinguish between room phones and administrative phones. Room phones have Controlled Class of Service Allowed (CCSA), while administrative phones have Controlled Class of Service Denied (CCSD). Call charges and meter data provided to the attendants appear on the BGD and are classified into five categories:

ROOM	guest room DN (CCSA)
ADMN	administrative phones (CCSD)
ATTN	attendant consoles
TRK	outgoing CO trunks
CUST	customer DNs

Feature interactions

Multiple Appearance Directory Numbers

Multiple Appearance DN's (MADNs) are charged on the meter assigned to the Prime DN (PDN). Data calls are charged to the originating telephone. Maintenance tests on metered trunks do not affect the metered values.

Call Transfer

Only the party originating the Call Transfer is metered.

Call Forward

On calls where the Call Forward feature is used, the last party to forward the call is metered. This applies to cases where a CO call originates from a Call Forward station, and to cases where an established CO call is transferred to a station that is forwarded to another internal station.

Conference

Only the party originating the Conference Call is metered.

Trunk-to-trunk calls

Metering of trunk-to-trunk calls using an outgoing CO trunk is not supported if the Trunk Access Code is a one- or two-digit access code. Otherwise, a meter corresponding to the Trunk Access Code of the metered trunk route is incremented. Only three- and four-digit codes are supported for DN's or Trunk Access Codes.

Attendants

For attendant-originated calls to CO trunks, the attendant meter is incremented. When the call is extended, the attendant is metered until a telephone within the Meridian 1 is added to the conference. When the attendant uses a loop key, the call is metered to the Room DN connected through that key; otherwise, the attendant meter is incremented.

Operating parameters

The MR package must be supported by a BGD with Controlled Class of Service Allowed (CCSA). The feature is not supported by attendant administration.

MR is mutually exclusive with AUTOVON, Coordinated Dialing Plans (CDPs), and Centralized Attendant Services (CAS).

One- or two-digit DN's or access codes cannot be metered.

Feature administration

Each CO route must be declared as metered or nonmetered in LD16, trunk route data block. Calls should not be allowed to overflow from metered to nonmetered routes.

A software meter must be assigned in the Customer Numbering Plan to each DN or Trunk Access Code for which metering is desired.

Hardware description

MR is supported on the following machine types:

- MS, S, XN, and N
- ST, NT, RT, and XT
- System options 21, 51, 61, and 71

Trunk circuit packs

One of the following trunk circuit packs must be used for trunks where metering is required. The choice of pack depends on two factors: whether the trunks involved are loop or ground start, and whether system operation is A-law or μ -law.

Trunk cards QPC219, QPC330, or QPC450 must be used for the CO trunk routes receiving Reverse Battery (RVB) signals. The QPC330 card must have its signaling set up like the QPC219. Note that QPC330 has an internal counter to accumulate pulses and lessen the number of CPU interrupts, but the QPC219 does not. (Tables 1 and 2)

Reverse Battery operation

When the CO trunk returns a Reverse Battery (RVB) signal, only one pulse is received for each outgoing call. This pulse is passed to the software meter for storage. The meter is incremented once for each metered local call regardless of duration. Reversals received within 2 seconds of digit outpulsing completion are ignored.

Table 1
QPC330 and QPC331 trunk option switch settings

Application	Switch settings											
	Unit 0 E35 switch						Unit 1 E5 switch					
	1	2	3	4	5	6	1	2	3	4	5	6
Loop start (accumulated pulsing)												
Third wire battery on M	off	off	off	off	on	off	off	off	off	off	on	off
Third wire ground on M	off	off	off	off	off	on	off	off	off	off	off	on
Second pair (M & MM)	off	off	off	off	off	off	off	off	off	off	off	off
Ground start (accumulated pulsing)												
Third wire battery on M	on	off	on	off	on	off	on	off	on	off	on	off
Third wire ground on M	on	off	on	off	off	on	on	off	on	off	off	on
Second pair (M & MM)	on	off	on	off	off	on	on	off	on	off	off	on
Regular CO trunk operation (same as QPC219/QPC295)	off	on	off	on	off	off	off	on	off	on	off	off

Table 2
QPC219, QPC295 CO/FX/WATS trunk cards

Application	Switch settings															
	Unit 0 E35 switch								Unit 1 E5 switch							
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Loop start (accumulated pulsing)																
Third wire battery on M	off	off	off	off	on	off			off	off	off	off	on	off		
Third wire ground on M	off	off	off	off	off	on			off	off	off	off	off	on		
Second pair (M & MM)	off	off	off	off	off	off			off	off	off	off	off	off		
Automatic guard detection	off	off	on						off	off	on					
Ground start (accumulated pulsing)																
Third wire battery on M	on	off	on	off	on	off			on	off	on	off	on	off		
Third wire ground on M	on	off	on	off	off	on			on	off	on	off	off	on		
Second pair (M & MM)	on	off	on	off	off	off			on	off	on	off	off	off		
900 Ω termination							on	on							on	on
600 Ω termination							off	off							off	off
Note: 900 and 600 Ω termination is for QPC219 and later vintages.																

Figure 1
Trunk connections

